Space Weather Forecast

Issued on Tuesday, 28 June 2022 at 00:16 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Slight chance of Moderate-class flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours, with one small Common-class flare observed. There are five sunspot regions on the visible disk. The largest region located in the southern hemisphere near the centre disc was responsible for the Common-class flare at 27/1843 UTC. All remaining regions are small and simple groups at this time.

There are considered to be no new Earth-directed Coronal Mass Ejections (CMEs) showing on available imagery. The ongoing lack of some Solar Dynamics Observatory (SDO) data means confidence is low and there remains the possibility weak transient features embedded in the solar wind. A possible filament eruption was indicated in STEREO-A EUVI imagery around 27/1000 UTC, from an area just south of the largest sunspot on the visible disc, though to this point no clear evidence of a CME is present in LASCO imagery.

Solar Wind / Geomagnetic Activity: The solar wind speed has slowly decreased during the period as coronal hole influences wane, reducing from 630km/s (strong) to around 480km/s (slightly elevated). The total magnetic field strength was weak. The important north-south component was initially negative, though became mostly positive from around 27/0545 UTC. Geomagnetic activity was Quiet to Active (Kp 1 to 4).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to be Low or Very Low, with only a slight chance of increasing to Moderate with any Moderate-class flares that occur.

Solar Wind / Geomagnetic Activity: A CME from the 24th is expected to pass just ahead of Earth early on day 1 (28th), but there is a slight chance it may give a glancing blow. Solar winds are expected to continue to slowly decrease on day 1 and 2 (28th and 29th) as the influence from one or more geo-effective coronal holes wanes; speeds reducing from slightly elevated to background levels. No further significant enhancements to the solar wind are expected through the remainder of the forecast period. Geomagnetic activity is likely to be mainly Quiet, with isolated Unsettled intervals possible through the period and with a slight chance of isolated Active intervals from any possible CME influence on day 1.

Energetic Particles / Solar Radiation: In the absence of any significant sunspot development, the count rate of energetic particles (high energy protons) is forecast to persist at background with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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